

## SEQUENCE LISTING

<110> THE JOHNS HOPKINS UNIVERSITY  
WORLEY, Paul F.

<120> METHOD OF SCREENING FOR AGENTS THAT MODULATE  
IMMUNOPHILIN/PEPTIDYLPROLINE CIS-TRANS ISOMERASE (PPIASE)-HOMER  
INTERACTION

<130> JHU1880-1

<140> US 10/518,941  
<141> 2003-06-19

<150> PCT/US03/19499  
<151> 2003-06-18

<150> US 60/398,511  
<151> 2002-06-18

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<170> PatentIn version 3.3

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<221> misc\_feature  
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<223> Xaa can be any naturally occurring amino acid

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Pro Pro Xaa Xaa Phe  
1 5

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Thr Pro Pro Ser Pro Phe  
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<223> Xaa can be any naturally occurring amino acid

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1

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Pro Ser Ser Pro

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Leu Pro Ser Ser Pro Ser Ser Ser Ser Pro

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5

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<213> Rat

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acaaggaatg tgtataggat aatcagtcta gacggctcaa aggcaataat aaatagcacc 180

atcactccaa acatgacatt tactaaaaca tctcaaaagt ttggccaatg ggctgatgc 240

cgggcaaaca ctgttatgg actggattc tcctctgagc atcatcttc aaaatttgca 300

|  |     |
|--|-----|
| gaaaagtttc aggaatttaa agaagctgct cggctggcaa aggagaagtc gcaggagaag  | 360 |
| atggaactga ccagtacccc ttcacaggaa tcagcaggag gagatcttca gtctccttta  | 420 |
| acaccagaaa gtatcaatgg gacagatgtat gagagaacac ccgatgtgac acagaactca | 480 |
| gagccaaggg ctgagccagc tcagaatgca ttgccatTTT cacataggtt cacattcaat  | 540 |
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|   |    |    |
|---|----|----|
| Asp Pro Asn Thr Lys Lys Asn Trp Val Pro Thr Ser Lys His Ala Val |    |    |
| 20  | 25 | 30 |

|   |    |    |
|---|----|----|
| Thr Val Ser Tyr Phe Tyr Asp Ser Thr Arg Asn Val Tyr Arg Ile Ile |    |    |
| 35  | 40 | 45 |

|   |    |    |
|---|----|----|
| Ser Leu Asp Gly Ser Lys Ala Ile Ile Asn Ser Thr Ile Thr Pro Asn |    |    |
| 50  | 55 | 60 |

|   |    |    |    |
|---|----|----|----|
| Met Thr Phe Thr Lys Thr Ser Gln Lys Phe Gly Gln Trp Ala Asp Ser |    |    |    |
| 65  | 70 | 75 | 80 |

|   |    |    |
|---|----|----|
| Arg Ala Asn Thr Val Tyr Gly Leu Gly Phe Ser Ser Glu His His Leu |    |    |
| 85  | 90 | 95 |

|   |     |     |
|---|-----|-----|
| Ser Lys Phe Ala Glu Lys Phe Gln Glu Phe Lys Glu Ala Ala Arg Leu |     |     |
| 100   | 105 | 110 |

|   |     |     |
|---|-----|-----|
| Ala Lys Glu Lys Ser Gln Glu Lys Met Glu Leu Thr Ser Thr Pro Ser |     |     |
| 115   | 120 | 125 |

|   |     |     |
|---|-----|-----|
| Gln Glu Ser Ala Gly Gly Asp Leu Gln Ser Pro Leu Thr Pro Glu Ser |     |     |
| 130   | 135 | 140 |

|   |     |     |     |
|---|-----|-----|-----|
| Ile Asn Gly Thr Asp Asp Glu Arg Thr Pro Asp Val Thr Gln Asn Ser |     |     |     |
| 145   | 150 | 155 | 160 |

|   |     |     |
|---|-----|-----|
| Glu Pro Arg Ala Glu Pro Ala Gln Asn Ala Leu Pro Phe Ser His Arg |     |     |
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Tyr Thr Phe Asn Ser Ala Ile Met Ile Lys  
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Gly His Arg Phe  
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Leu Pro Pro Pro Phe  
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Leu Pro Pro Pro Arg  
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Leu Pro Leu Pro Phe  
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Leu Pro Ser Ser Ala Ser Ser Ser Ser Pro  
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Ala Pro Ser Ser Pro Ser Ser Ser Ser Pro  
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Leu Pro Ser Ser Pro Ser Ser Ser Ser Ala  
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<210> 20  
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Leu Pro Ser Ser Pro  
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<210> 21

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Gly Leu Gly Phe
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<213> Homo sapiens

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Ser Gly Pro Val Gly Ala Pro Pro Pro Ser Pro Gly Leu Pro Pro Ser  
35 40 45

Trp Ala Ala Met Met Ala Ala Leu Tyr Pro Ser Thr Asp Leu Ser Gly  
50 55 60

Ala Ser Ser Ser Ser Leu Pro Ser Ser Pro Ser Ser Ser Pro Asn  
65 70 75 80

Glu Val Met Ala Leu Lys Asp Val Arg Glu Val Lys Glu Glu Asn Thr  
85 90 95

Leu Asn Glu Lys Leu Phe Leu Leu Ala Cys Asp Lys Gly Asp Tyr Tyr  
100 105 110

Met Val Lys Lys Ile Leu Glu Glu Asn Ser Ser Gly Asp Leu Asn Ile  
115 120 125

Asn Cys Val Asp Val Leu Gly Arg Asn Ala Val Thr Ile Thr Ile Glu  
130 135 140

Asn Glu Asn Leu Asp Ile Leu Gln Leu Leu Leu Asp Tyr Gly Cys Gln  
145 150 155 160

Lys Leu Met Glu Arg Ile Gln Asn Pro Glu Tyr Ser Thr Thr Met Asp  
165 170 175

Val Ala Pro Val Ile Leu Ala Ala His Arg Asn Asn Tyr Glu Ile Leu  
180 185 190

Thr Met Leu Leu Lys Gln Asp Val Ser Leu Pro Lys Pro His Ala Val  
 195 200 205

Gly Cys Glu Cys Thr Leu Cys Ser Ala Lys Asn Lys Lys Asp Ser Leu  
 210 215 220

Arg His Ser Arg Phe Arg Leu Asp Ile Tyr Arg Cys Leu Ala Ser Pro  
 225 230 235 240

Ala Leu Ile Met Leu Thr Glu Glu Asp Pro Ile Leu Arg Ala Phe Glu  
 245 250 255

Leu Ser Ala Asp Leu Lys Glu Leu Ser Leu Val Glu Val Glu Phe Arg  
 260 265 270

Asn Asp Tyr Glu Glu Leu Ala Arg Gln Cys Lys Met Phe Ala Lys Asp  
 275 280 285

Leu Leu Ala Gln Ala Arg Asn Ser Arg Glu Leu Glu Val Ile Leu Asn  
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His Thr Ser Ser Asp Glu Pro Leu Asp Lys Arg Gly Leu Leu Glu Glu  
 305 310 315 320

Arg Met Asn Leu Ser Arg Leu Lys Leu Ala Ile Lys Tyr Asn Gln Lys  
 325 330 335

Glu Phe Val Ser Gln Ser Asn Cys Gln Gln Phe Leu Asn Thr Val Trp  
 340 345 350

Phe Gly Gln Met Ser Gly Tyr Arg Arg Lys Pro Thr Cys Lys Lys Ile  
 355 360 365

Met Thr Val Leu Thr Val Gly Ile Phe Trp Pro Val Leu Ser Leu Cys  
 370 375 380

Tyr Leu Ile Ala Pro Lys Ser Gln Phe Gly Arg Ile Ile His Thr Pro  
 385 390 395 400

Phe Met Lys Phe Ile Ile His Gly Ala Ser Tyr Phe Thr Phe Leu Leu  
 405 410 415

Leu Leu Asn Leu Tyr Ser Leu Val Tyr Asn Glu Asp Lys Lys Asn Thr  
 420 425 430

Met Gly Pro Ala Leu Glu Arg Ile Asp Tyr Leu Leu Ile Leu Trp Ile

435

440

445

Ile Gly Met Ile Trp Ser Asp Ile Lys Arg Leu Trp Tyr Glu Gly Leu  
 450 455 460

Glu Asp Phe Leu Glu Glu Ser Arg Asn Gln Leu Ser Phe Val Met Asn  
 465 470 475 480

Ser Leu Tyr Leu Ala Thr Phe Ala Leu Lys Val Val Ala His Asn Lys  
 485 490 495

Phe His Asp Phe Ala Asp Arg Lys Asp Trp Asp Ala Phe His Pro Thr  
 500 505 510

Leu Val Ala Glu Gly Leu Phe Ala Phe Ala Asn Val Leu Ser Tyr Leu  
 515 520 525

Arg Leu Phe Phe Met Tyr Thr Ser Ser Ile Leu Gly Pro Leu Gln  
 530 535 540

Ile Ser Met Gly Gln Met Leu Gln Asp Phe Gly Lys Phe Leu Gly Met  
 545 550 555 560

Phe Leu Leu Val Leu Phe Ser Phe Thr Ile Gly Leu Thr Gln Leu Tyr  
 565 570 575

Asp Lys Gly Tyr Thr Ser Lys Glu Gln Lys Asp Cys Val Gly Ile Phe  
 580 585 590

Cys Glu Gln Gln Ser Asn Asp Thr Phe His Ser Phe Ile Gly Thr Cys  
 595 600 605

Phe Ala Leu Phe Trp Tyr Ile Phe Ser Leu Ala His Val Ala Ile Phe  
 610 615 620

Val Thr Arg Phe Ser Tyr Gly Glu Glu Leu Gln Ser Phe Val Gly Ala  
 625 630 635 640

Val Ile Val Gly Thr Tyr Asn Val Val Val Val Ile Val Leu Thr Lys  
 645 650 655

Leu Leu Val Ala Met Leu His Lys Ser Phe Gln Leu Ile Ala Asn His  
 660 665 670

Glu Asp Lys Glu Trp Lys Phe Ala Arg Ala Lys Leu Trp Leu Ser Tyr  
 675 680 685

Phe Asp Asp Lys Cys Thr Leu Pro Pro Pro Phe Asn Ile Ile Pro Ser  
 690 695 700

Pro Lys Thr Ile Cys Tyr Met Ile Ser Ser Leu Ser Lys Trp Ile Cys  
 705 710 715 720

Ser His Thr Ser Lys Gly Lys Val Lys Arg Gln Asn Ser Leu Lys Glu  
 725 730 735

Trp Arg Asn Leu Lys Gln Lys Arg Asp Glu Asn Tyr Gln Lys Val Met  
 740 745 750

Cys Cys Leu Val His Arg Tyr Leu Thr Ser Met Arg Gln Lys Met Gln  
 755 760 765

Ser Thr Asp Gln Ala Thr Val Glu Asn Leu Asn Glu Leu Arg Gln Asp  
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Ser Lys Tyr Ala Met Phe Tyr Pro Arg Asn  
 805 810

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Gly Val Lys Lys Ile Leu Glu Glu Tyr Gln Gly Thr Asp Lys Phe Asn  
 20 25 30

Ile Asn Cys Thr Asp Pro Met Asn Arg Ser Ala Leu Ile Ser Ala Ile  
 35 40 45

Glu Asn Glu Asn Phe Asp Leu Met Val Ile Leu Leu Glu His Asn Ile  
 50 55 60

Glu Val Gly Asp Ala Leu Leu His Ala Ile Ser Glu Glu Tyr Val Glu  
 65 70 75 80

Ala Val Glu Glu Leu Leu Gln Trp Glu Glu Thr Asn His Lys Glu Gly  
                   85                  90                  95

Gln Pro Tyr Ser Trp Glu Ala Val Asp Arg Ser Lys Ser Thr Phe Thr  
                   100              105                  110

Val Asp Ile Thr Pro Leu Ile Leu Ala Ala His Arg Asn Asn Tyr Glu  
                   115              120                  125

Ile Leu Lys Ile Leu Leu Asp Arg Gly Ala Thr Leu Pro Met Pro His  
                   130              135                  140

Asp Val Lys Cys Gly Cys Asp Glu Cys Val Thr Ser Gln Thr Thr Asp  
                   145              150                  155                  160

Ser Leu Arg His Ser Gln Ser Arg Ile Asn Ala Tyr Arg Ala Leu Ser  
                   165              170                  175

Ala Ser Ser Leu Ile Ala Leu Ser Ser Arg Asp Pro Val Leu Thr Val  
                   180              185                  190

Phe Gln Leu Ser Trp Glu Leu Lys Arg Leu Gln Ala Met Glu Ser Glu  
                   195              200                  205

Phe Arg Ala Glu Tyr Thr Glu Met Arg Gln Met Val Gln Asp Phe Gly  
                   210              215                  220

Thr Ser Leu Leu Asp His Ala Arg Thr Ser Met Glu Leu Glu Val Met  
                   225              230                  235                  240

Leu Asn Phe Asn His Glu Pro Ser His Asp Ile Trp Cys Leu Gly Gln  
                   245              250                  255

Arg Gln Thr Leu Glu Arg Leu Lys Leu Ala Ile Arg Tyr Lys Gln Lys  
                   260              265                  270

Thr Phe Val Ala His Pro Asn Val Gln Gln Leu Leu Ala Ala Ile Trp  
                   275              280                  285

Tyr Asp Gly Leu Pro Gly Phe Arg Arg Lys Gln Ala Ser Gln Gln Leu  
                   290              295                  300

Met Asp Val Val Lys Leu Gly Cys Ser Phe Pro Ile Tyr Ser Leu Lys  
                   305              310                  315                  320

Tyr Ile Leu Ala Pro Asp Ser Glu Gly Ala Lys Phe Met Arg Lys Pro

325

330

335

Phe Val Lys Phe Ile Thr His Ser Cys Ser Tyr Met Phe Phe Leu Met  
 340 345 350

Leu Leu Gly Ala Ala Ser Leu Arg Val Val Gln Ile Thr Phe Glu Leu  
 355 360 365

Leu Ala Phe Pro Trp Met Leu Thr Met Leu Glu Asp Trp Arg Lys His  
 370 375 380

Glu Arg Gly Ser Leu Pro Gly Pro Ile Glu Leu Ala Ile Ile Thr Tyr  
 385 390 395 400

Ile Met Ala Leu Ile Phe Glu Glu Leu Lys Ser Leu Tyr Ser Asp Gly  
 405 410 415

Leu Phe Glu Tyr Ile Met Asp Leu Trp Asn Ile Val Asp Tyr Ile Ser  
 420 425 430

Asn Met Phe Tyr Val Thr Trp Ile Leu Cys Arg Ala Thr Ala Trp Val  
 435 440 445

Ile Val His Arg Asp Leu Trp Phe Arg Gly Ile Asp Pro Tyr Phe Pro.  
 450 455 460

Arg Glu His Trp His Pro Phe Asp Pro Met Leu Leu Ser Glu Gly Ala  
 465 470 475 480

Phe Ala Ala Gly Met Val Phe Ser Tyr Leu Lys Leu Val His Ile Phe  
 485 490 495

Ser Ile Asn Pro His Leu Gly Pro Leu Gln Val Ser Leu Gly Arg Met  
 500 505 510

Ile Ile Asp Ile Ile Lys Phe Phe Phe Ile Tyr Thr Leu Val Leu Phe  
 515 520 525

Ala Phe Gly Cys Gly Leu Asn Gln Leu Leu Trp Tyr Tyr Ala Glu Leu  
 530 535 540

Glu Lys Asn Lys Cys Tyr His Leu His Pro Asp Val Ala Asp Phe Asp  
 545 550 555 560

Asp Gln Glu Lys Ala Cys Thr Ile Trp Arg Arg Phe Ser Asn Leu Phe  
 565 570 575

Glu Thr Ser Gln Ser Leu Phe Trp Ala Ser Phe Gly Leu Val Asp Leu  
 580 585 590

Val Ser Phe Asp Leu Ala Gly Ile Lys Ser Phe Thr Arg Phe Trp Ala  
 595 600 605

Leu Leu Met Phe Gly Ser Tyr Ser Val Ile Asn Ile Ile Val Leu Leu  
 610 615 620

Asn Met Leu Ile Ala Met Met Ser Asn Ser Tyr Gln Ile Ile Ser Glu  
 625 630 635 640

Arg Ala Asp Thr Glu Trp Lys Phe Ala Arg Ser Gln Leu Trp Met Ser  
 645 650 655

Tyr Phe Glu Asp Gly Gly Thr Ile Pro Pro Pro Phe Asn Leu Cys Pro  
 660 665 670

Asn Met Lys Met Leu Arg Lys Thr Leu Gly Arg Lys Arg Pro Ser Arg  
 675 680 685

Thr Lys Ser Phe Met Arg Lys Ser Met Glu Arg Ala Gln Thr Leu His  
 690 695 700

Asp Lys Val Met Lys Leu Leu Val Arg Arg Tyr Ile Thr Ala Glu Gln  
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Arg Arg Arg Asp Asp Tyr Gly Ile Thr Glu Asp Asp Ile Ile Glu Val  
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Arg Gln Asp Ile Ser Ser  
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<400> 27

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|   |     |     |     |
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| 50  | 55  | 60  |     |
| Glu Thr Lys Asp Ala Leu Leu His Ala Ile Asn Ala Glu Phe Val Glu |     |     |     |
| 65  | 70  | 75  | 80  |
| Ala Val Glu Leu Leu Glu His Glu Glu Leu Ile Tyr Lys Glu Gly     |     |     |     |
| 85  | 90  | 95  |     |
| Glu Pro Tyr Ser Trp Gln Lys Val Asp Ile Asn Thr Ala Met Phe Ala |     |     |     |
| 100   | 105 | 110 |     |
| Pro Asp Ile Thr Pro Leu Met Leu Ala Ala His Lys Asn Asn Phe Glu |     |     |     |
| 115   | 120 | 125 |     |
| Ile Leu Arg Ile Leu Leu Asp Arg Gly Ala Ala Val Pro Val Pro His |     |     |     |
| 130   | 135 | 140 |     |
| Asp Ile Arg Cys Gly Cys Glu Glu Cys Val Arg Leu Thr Ala Glu Asp |     |     |     |
| 145   | 150 | 155 | 160 |
| Ser Leu Arg His Ser Leu Ser Arg Val Asn Ile Tyr Arg Ala Leu Cys |     |     |     |
| 165   | 170 | 175 |     |
| Ser Pro Ser Leu Ile Cys Leu Thr Ser Asn Asp Pro Ser Ser Thr Ala |     |     |     |
| 180   | 185 | 190 |     |
| Phe Gln Leu Ser Trp Glu Leu Arg Asn Leu Ala Leu Thr Glu Gln Glu |     |     |     |
| 195   | 200 | 205 |     |
| Cys Lys Ser Glu Tyr Met Asp Leu Arg Arg Gln Cys Gln Lys Phe Ala |     |     |     |
| 210   | 215 | 220 |     |
| Val Asp Leu Leu Asp Gln Thr Arg Thr Ser Asn Glu Leu Ala Ile Ile |     |     |     |
| 225   | 230 | 235 | 240 |
| Leu Asn Tyr Asp Pro Gln Met Ser Ser Tyr Glu Pro Gly Asp Arg Met |     |     |     |
| 245   | 250 | 255 |     |
| Ser Leu Thr Arg Leu Val Gln Ala Ile Ser Tyr Lys Gln Lys Lys Phe |     |     |     |
| 260   | 265 | 270 |     |
| Val Ala His Ser Asn Ile Gln Gln Leu Leu Ser Ser Ile Trp Tyr Asp |     |     |     |

275

280

285

Gly Leu Pro Gly Phe Arg Arg Lys Ser Ile Val Asp Lys Val Ile Cys  
290 295 300

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| Ile | Ala | Gln | Val | Ala | Val | Leu | Phe | Pro | Leu | Tyr | Cys | Leu | Ile | Tyr | Met |
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Cys Ala Pro Asn Cys Arg Thr Gly Gln Leu Met Arg Lys Pro Phe Met  
                  325                 330                 335

Lys Phe Leu Ile His Ala Ser Ser Tyr Leu Phe Phe Leu Phe Ile Leu  
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Ile Leu Val Ser Gln Arg Ala Asp Asp Asp Phe Val Arg Ile Phe Gly  
355 360 365

Thr Thr Arg Met Lys Lys Glu Leu Ala Glu Gln Glu Leu Arg Gln Arg  
370 375 380

Gly Gln Thr Pro Ser Lys Leu Glu Leu Ile Val Val Met Tyr Val Ile  
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Gly Phe Val Trp Glu Glu Val Lys Glu Ile Phe Ala Val Gly Met Lys  
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Ser Tyr Leu Arg Asn Met Trp Asn Phe Ile Asp Phe Leu Arg Asn Ser  
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Leu Tyr Val Ser Val Met Cys Leu Arg Ala Phe Ala Tyr Ile Gln Gln  
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Ala Thr Glu Ile Ala Arg Asp Pro Gln Met Ala Tyr Ile Pro Arg Glu  
450 455 460

Lys Trp His Asp Phe Asp Pro Gln Leu Ile Ala Glu Gly Leu Phe Ala  
465 470 475 480

Ala Ala Asn Val Phe Ser Ala Leu Lys Leu Val His Leu Phe Ser Ile  
485 490 495

Asn Pro His Leu Gly Pro Leu Gln Ile Ser Leu Gly Arg Met Val Ile  
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Asp Ile Val Lys Phe Phe Phe Ile Tyr Thr Leu Val Leu Phe Ala Phe  
515 520 525

Ala Cys Gly Leu Asn Gln Leu Leu Trp Tyr Phe Ala Ala Leu Glu Lys  
 530 535 540

Ser Lys Cys Tyr Val Leu Pro Gly Gly Glu Ala Asp Trp Gly Ser His  
 545 550 555 560

Gly Asp Ser Cys Met Lys Trp Arg Arg Phe Gly Asn Leu Phe Glu Ser  
 565 570 575

Ser Gln Ser Leu Phe Trp Ala Ser Phe Gly Met Val Gly Leu Asp Asp  
 580 585 590

Phe Glu Leu Ser Gly Ile Lys Ser Tyr Thr Arg Phe Trp Gly Leu Leu  
 595 600 605

Met Phe Gly Ser Tyr Ser Val Ile Asn Val Ile Val Leu Leu Asn Leu  
 610 615 620

Leu Ile Ala Met Met Ser Asn Ser Tyr Ala Met Ile Asp Glu His Ser  
 625 630 635 640

Asp Thr Glu Trp Lys Phe Ala Arg Thr Lys Leu Trp Met Ser Tyr Phe  
 645 650 655

Glu Asp Ser Ala Thr Leu Pro Pro Phe Asn Val Leu Pro Ser Val  
 660 665 670

Lys Trp Val Ile Arg Ile Phe Arg Lys Ser Ser Lys Thr Ile Asp Arg  
 675 680 685

Gln Arg Ser Lys Lys Arg Lys Glu Gln Glu Gln Phe Ser Glu Tyr Asp  
 690 695 700

Asn Ile Met Arg Ser Leu Val Trp Arg Tyr Val Ala Ala Met His Arg  
 705 710 715 720

Lys Phe Glu Asn Asn Pro Val Ser Glu Asp Asp Ile Asn Glu Val Lys  
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Ser Glu Ile Asn Thr  
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<213> *Caenorhabditis elegans*

<400> 28

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20 25 30

Asn Cys Leu Asp Ser Met Gly Arg Thr Ala Leu Glu Ile Ala Val Asp  
35 40 45

Asn Glu Asn Met Glu Val Val Glu Leu Leu Leu Gln Gln Pro Asp Ile  
50 55 60

Arg Ile Gly Asn Ala Leu Leu Cys Ala Ile Arg Glu Gly Val Tyr Arg  
65 70 75 80

Leu Val Glu Val Leu Val Asn His Pro Asn Ile Thr Arg Glu Met Leu  
85 90 95

Gly Asp Gly Trp Ser Gln Ala Leu Asp Pro Ser Glu Ala Ala Ser Ala  
100 105 110

Glu Tyr Ser Ser Asp Ile Ser Pro Val Ile Leu Ala Ala Gln Leu Asn  
115 120 125

Gln Phe Glu Ile Leu Gln Met Leu Ile Arg Lys Asp Ala Ser Ile Glu  
130 135 140

Lys Pro His Arg His Ser Cys Ile Cys Glu Thr Cys Asp Arg Glu Arg  
145 150 155 160

Leu Asn Asp Ser Leu Gln Tyr Ser Leu Lys Arg Ile Asn Thr Phe Arg  
165 170 175

Ala Leu Ala Ser Pro Ala Trp Met Ser Leu Thr Ser Pro Asp Pro Ile  
180 185 190

Leu Ser Ala Phe Lys Leu Ser Trp Asp Leu Gln Arg Leu Ala Phe Glu  
195 200 205

Glu His Glu Phe Lys Glu Thr Tyr Leu Gln Leu Ser Glu Gln Cys Lys  
210 215 220

Gln Tyr Ser Cys Asp Leu Leu Ser Gln Cys Arg Ser Ser Glu Glu Val

| 225   | 230 | 235 | 240 |
|---|-----|-----|-----|
| Ile Ala Ile Leu Asn Lys Asp Gly Asn Val Asn Asp Asp Asn Ile Asp |     |     |     |
| 245   | 250 |     | 255 |
| Val Trp Ala Ser Lys Leu Ser Leu Ser Arg Leu Lys Leu Ala Ile Lys |     |     |     |
| 260   | 265 |     | 270 |
| Tyr Glu Gln Lys Ala Phe Val Ser His Pro His Cys Gln Gln Leu Leu |     |     |     |
| 275   | 280 |     | 285 |
| Thr Ser Ile Trp Tyr Glu Gly Ile Pro Tyr Arg Gln Arg Ser Gly Thr |     |     |     |
| 290   | 295 |     | 300 |
| Trp Ala Asn Phe Phe Leu Tyr Ala Phe Leu Leu Phe Leu Trp Pro Ile |     |     |     |
| 305   | 310 |     | 315 |
| Phe Cys Leu Met Tyr Ile Leu Met Pro Lys Ser Arg Leu Gly Arg Leu |     |     |     |
| 325   | 330 |     | 335 |
| Val Arg Ser Pro Phe Met Lys Phe Phe Tyr Tyr Ser Val Ser Phe Ala |     |     |     |
| 340   | 345 |     | 350 |
| Thr Phe Leu Gly Leu Leu Thr Trp Ala Thr Phe Glu Asp Tyr Arg Tyr |     |     |     |
| 355   | 360 |     | 365 |
| Glu Lys Gly Glu Arg Gly Gly Met Thr Arg Ala Ser Asp Arg Gly Pro |     |     |     |
| 370   | 375 |     | 380 |
| Pro Ala Thr Trp Val Glu Ser Leu Val Phe Thr Trp Val Ile Gly Met |     |     |     |
| 385   | 390 |     | 395 |
| Leu Trp Ser Glu Ile Lys Gln Leu Trp Glu Glu Gly Phe Lys Arg Tyr |     |     |     |
| 405   | 410 |     | 415 |
| Met Arg Gln Trp Trp Asn Trp Leu Asp Phe Leu Met Ile Cys Leu Tyr |     |     |     |
| 420   | 425 |     | 430 |
| Leu Cys Thr Ile Ser Ile Arg Leu Ser Ala Tyr Tyr Ile Phe Thr Tyr |     |     |     |
| 435   | 440 |     | 445 |
| Arg Glu Asp Pro Tyr Arg Tyr Thr Val Arg Thr Tyr Trp Thr Ser Glu |     |     |     |
| 450   | 455 |     | 460 |
| Glu Pro Met Leu Val Ala Glu Ala Leu Phe Ala Val Gly Asn Val Phe |     |     |     |
| 465   | 470 |     | 475 |

Ser Phe Ala Arg Ile Ile Tyr Leu Phe Gln Thr Asn Pro Tyr Leu Gly  
 485 490 495

Pro Leu Gln Ile Ser Leu Gly Cys Met Leu Val Asp Val Ala Lys Phe  
 500 505 510

Cys Phe Ile Phe Val Leu Ile Ile Ser Ser Phe Ser Ile Gly Leu Ala  
 515 520 525

Gln Leu Tyr Trp Tyr Asp Pro Asn Thr Asp Val Cys Leu Pro Gly  
 530 535 540

Ala Thr Cys Lys His Ser Ser Asn Val Phe Ser Ser Ile Ala Asp Ser  
 545 550 555 560

Tyr Leu Thr Leu Leu Trp Ser Leu Phe Ser Ile Thr Lys Pro Glu Asp  
 565 570 575

Thr Asp Val Val Glu Asn His Lys Ile Thr Gln Trp Val Gly Gln Gly  
 580 585 590

Met Phe Ile Met Tyr His Cys Thr Ser Ile Ile Val Leu Leu Asn Met  
 595 600 605

Leu Ile Ala Met Met Ser His Ser Phe Gln Ile Ile Asn Asp His Ala  
 610 615 620

Asp Leu Glu Trp Lys Phe His Arg Thr Lys Leu Trp Met Ala His Phe  
 625 630 635 640

Asp Glu Gly Ser Ser Leu Pro Pro Phe Asn Ile Ile Val Thr Pro  
 645 650 655

Lys Ser Leu Ile Tyr Val Met Asn Cys Leu Phe Asn Thr Val Arg Trp  
 660 665 670

Leu Leu Gly Lys Tyr Thr Tyr Gln Lys Asn Arg Asn Arg Ala Thr Ile  
 675 680 685

Arg Arg Pro Gly Tyr Ser Arg Lys Arg Asn Glu Met Glu Lys Ser Gly  
 690 695 700

Gly His Asp Asp Asp Ser Leu Lys Pro Leu Thr Tyr Ala Asp Ile Ile  
 705 710 715 720

Thr Arg Leu Val Ala Arg Phe Ile His Gln Thr Lys Lys Asp Met Lys  
725 730 735

Met Asp Gly Val Asn Glu Asp Asp Leu His Glu Ile Lys Gln Asp Ile  
 740 745 750

Ser Ser

<210> 29  
<211> 183  
<212> PRT  
<213> *Homo sapiens*

<400> 29

Asp Val Pro Gln Phe Leu Val Pro Glu Phe Ala Gly Arg Ala Leu Tyr  
20 25 30

Gly Ile Phe Thr Ile Ile Met Val Ile Val Leu Leu Asn Met Leu Ile  
35 40 45

Ala Met Ile Thr Asn Ser Phe Gln Lys Ile Glu Asp Asp Ala Asp Val  
50 55 60

Glu Trp Thr Phe Ala Arg Ser Lys Leu Tyr Leu Phe Tyr Phe Glu Gly  
65 70 75 80

Leu Thr Leu Pro Val Pro Phe Asn Ile Leu Pro Ser Ser Lys Ala Val  
85 90 95

Phe Tyr Leu Leu Arg Arg Ile Cys Gln Phe Ile Cys Cys Cys Cys Ser  
           100                 105                 110

Cys Cys Lys Thr Lys Lys Pro Asp Tyr Pro Pro Pro Ile Ile Thr Phe Ala  
           115                  120                          125

Asn Pro Arg Ala Gly Ala Val Pro Gly Glu Gly Glu Arg Gly Ser Tyr  
130 135 140

Arg Leu His Val Ile Lys Ala Leu Val Gln Arg Tyr Thr Glu Thr Ala  
145 150 155 160

Arg Arg Glu Phe Glu Glu Thr Arg Arg Lys Asp Leu Gly Asn Arg Leu

165

170

175

Thr Glu Leu Thr Lys Thr Ile  
180

<210> 30  
<211> 117  
<212> PRT  
<213> Homo sapiens

<400> 30

Thr Ser Val Val Leu Lys Tyr Asp His Lys Phe Ile Glu Asn Ile Gly  
1 5 10 15

Tyr Val Leu Tyr Gly Ile Tyr Asn Val Thr Met Val Val Val Leu Leu  
20 25 30

Asn Met Leu Ile Ala Met Ile Asn Ser Ser Tyr Gln Glu Ile Glu Asp  
35 40 45

Asp Ser Asp Val Glu Trp Lys Phe Ala Arg Ser Lys Leu Trp Leu Ser  
50 55 60

Tyr Phe Asp Asp Gly Lys Thr Leu Pro Pro Pro Phe Ser Leu Val Pro  
65 70 75 80

Ser Pro Lys Ser Phe Val Tyr Phe Ile Met Arg Ile Val Asn Phe Pro  
85 90 95

Lys Cys Arg Arg Arg Leu Gln Lys Asp Ile Gly Asn Gly Glu Trp  
100 105 110

Gly Asn Ser Lys Ser  
115